
South Dakota GAME REPORT

No. 2006 – 07

2005

Annual Report

UPLAND BIRD AND WATERFOWL MANAGEMENT SURVEYS

Corey Huxoll

**Game Harvest Surveys Coordinator
Planning Section/Wildlife Administration
Division of Wildlife
South Dakota Department of Game, Fish and Parks
Joe Foss Building, 523 E. Capitol Ave.
Pierre, South Dakota 57501-3182**

2005 Upland Bird and Waterfowl Management Surveys

Annual Report

Prepared by Corey Huxoll from submissions by
John Wrede, Regional Wildlife Manager, Region I;
Andy Lindbloom, Regional Wildlife Manager, Region II;
Ron Schauer, Regional Wildlife Manager, Region III;
Will Morlock, Regional Wildlife Manager, Region IV;
Spencer Vaa, Senior Waterfowl Biologist;
Paul Mammenga, Assistant Waterfowl Biologist

Pittman-Robertson Project ----- W-95-R-39
Study No. 9501 ----- Jobs I - II
Study No. 9502 ----- Jobs I - V
Study No. 9503 ----- Job I
Study No. 9504 ----- Job I
Study No. 9506 ----- Job I
Study No. 9510 ----- Job I
Study No. 9521 ----- Job I
Date Prepared ----- July 2006

Department Secretary
John Cooper
Wildlife Division Director
Doug Hansen

Game Program Administrator
Tony Leif
Grants Coordinator
Michael Lees

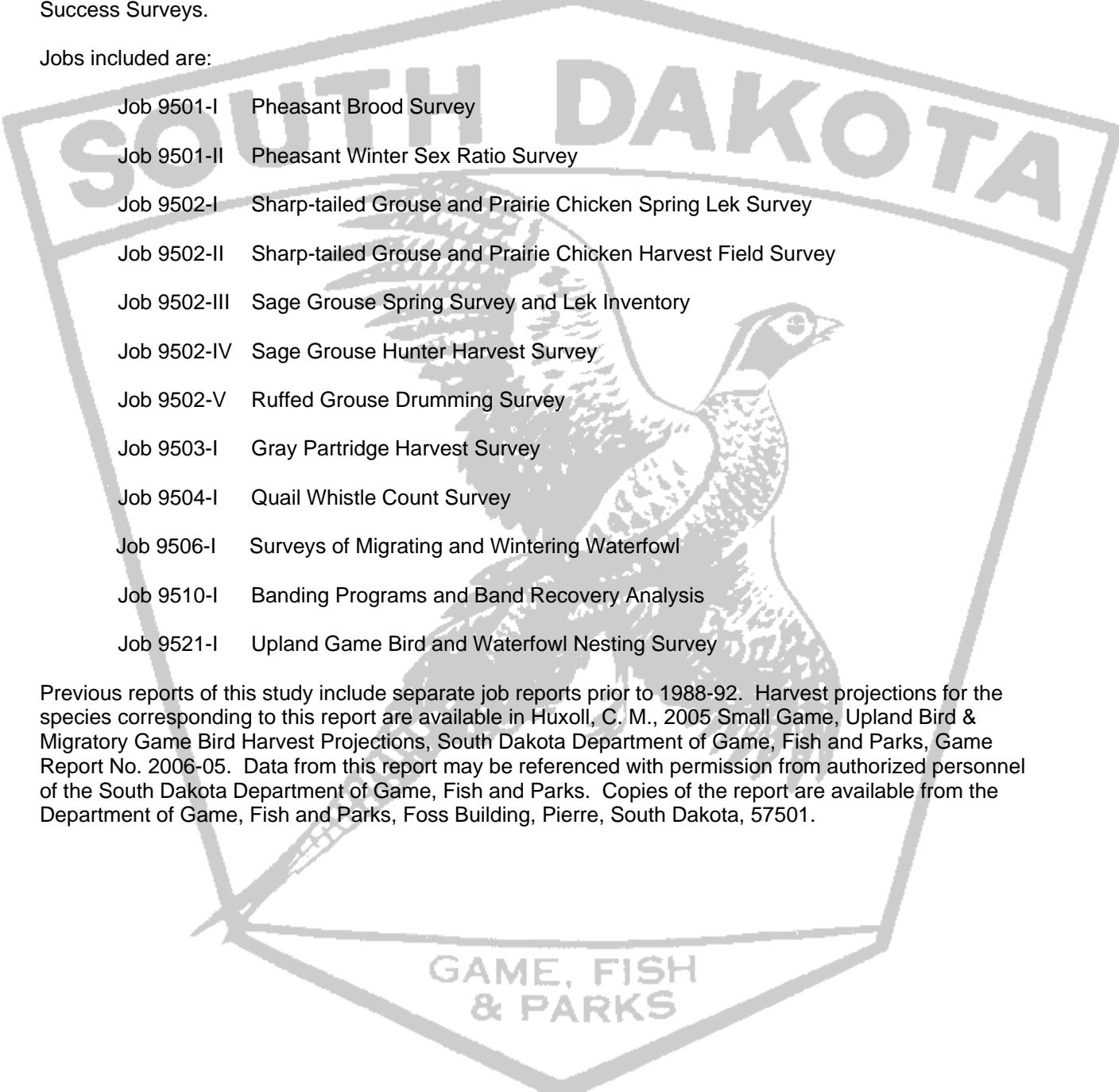
This report funded in part by Federal Aid for Wildlife Restoration



PREFACE

Data presented in this report were gathered during the 2005-2006 fiscal period under Pittman-Robertson Project W-95-R-39 for Study Number 9501, Pheasant Management Surveys, Study Number 9502, Grouse Management Surveys, Study Number 9503, Gray Partridge Management Surveys, Study Number 9504, Quail Management Surveys, Study Number 9506, Waterfowl Management Surveys, Study Number 9510, Banding and Band Recovery Analysis of Migratory Birds, and Study Number 9521, Game Bird Nesting Success Surveys.

Jobs included are:

- 
- Job 9501-I Pheasant Brood Survey
 - Job 9501-II Pheasant Winter Sex Ratio Survey
 - Job 9502-I Sharp-tailed Grouse and Prairie Chicken Spring Lek Survey
 - Job 9502-II Sharp-tailed Grouse and Prairie Chicken Harvest Field Survey
 - Job 9502-III Sage Grouse Spring Survey and Lek Inventory
 - Job 9502-IV Sage Grouse Hunter Harvest Survey
 - Job 9502-V Ruffed Grouse Drumming Survey
 - Job 9503-I Gray Partridge Harvest Survey
 - Job 9504-I Quail Whistle Count Survey
 - Job 9506-I Surveys of Migrating and Wintering Waterfowl
 - Job 9510-I Banding Programs and Band Recovery Analysis
 - Job 9521-I Upland Game Bird and Waterfowl Nesting Survey

Previous reports of this study include separate job reports prior to 1988-92. Harvest projections for the species corresponding to this report are available in Huxoll, C. M., 2005 Small Game, Upland Bird & Migratory Game Bird Harvest Projections, South Dakota Department of Game, Fish and Parks, Game Report No. 2006-05. Data from this report may be referenced with permission from authorized personnel of the South Dakota Department of Game, Fish and Parks. Copies of the report are available from the Department of Game, Fish and Parks, Foss Building, Pierre, South Dakota, 57501.

TABLE OF CONTENTS

	Page
PREFACE	i
STUDY OBJECTIVES.....	1
JOB 9501-I PHEASANT BROOD SURVEY	1
JOB 9501-II PHEASANT WINTER SEX RATIO SURVEY	1
JOB 9502-I SHARP-TAILED GROUSE AND PRAIRIE CHICKEN SPRING LEK SURVEY	2
JOB 9502-II SHARP-TAILED GROUSE AND PRAIRIE CHICKEN HARVEST FIELD SURVEY	2
JOB 9502-III SAGE GROUSE SPRING SURVEY AND LEK INVENTORY	3
JOB 9502-IV SAGE GROUSE HUNTER HARVEST SURVEY	4
JOB 9502-V RUFFED GROUSE DRUMMING SURVEY	4
JOB 9503-I GRAY PARTRIDGE HARVEST SURVEY	5
JOB 9504-I NORTHERN BOBWHITE WHISTLE COUNT SURVEY	5
JOB 9506-I SURVEYS OF MIGRATING AND WINTERING WATERFOWL.....	5
JOB 9510-I BANDING PROGRAMS AND BAND RECOVERY ANALYSIS.....	6
JOB 9521-I UPLAND GAME BIRD AND WATERFOWL NESTING SURVEY	7

APPENDICES**FIGURES**

Figure 1. Pheasant brood survey routes.....	11
Figure 2. Sharp-tailed grouse spring male densities, 1994-present.....	12
Figure 3. Greater prairie chicken spring male densities, 1994-present.....	12
Figure 4. Bobwhite quail whistle count survey, 1963-present	13

TABLES

Table 1. 2005 pheasant brood survey route results	14
Table 2. Sharp-tailed grouse spring breeding population density.	16
Table 3. Sharp-tailed grouse males per lek, 1994-present.....	16
Table 4. Greater prairie chicken spring breeding population density	17
Table 5. Greater prairie chicken males per lek, 1994-present.	17
Table 6. Prairie grouse wing data from Ft. Pierre National Grassland, 1992-present.....	17
Table 7. 2005 northern bobwhite whistle count summary	18
Table 8. Northern bobwhite whistle count survey summary, 1963-present.....	19
Table 9. Pre-season (August – September 2005) duck banding summary.....	20
Table 10. South Dakota mourning dove banding, 2005.	20
Table 11. Culvert nesting structures with fiberglass cover partitions, 2005	20
Table 12. Mallard baskets with fiberglass cover-tops, 2005.....	20
Table 13. South Dakota mallard cylinders, 2005.	21
Table 14. Predators removed from waterfowl nest success study areas, 2005.....	21

STUDY OBJECTIVES

The objectives of this study were to obtain population and harvest data regarding upland and migratory game bird species in order to ensure their welfare while providing the maximum recreational opportunity for the public.

PHEASANT MANAGEMENT SURVEYS

JOB 9501-I PHEASANT BROOD SURVEY

Objective: To determine pheasant reproductive success, population trend and relative densities throughout the pheasant range; and to obtain baseline information for determining summer mortality of young.

Narrative: The summer brood survey was accomplished by completing 110 survey routes statewide, each route is 30 miles in length (Figure 1). These surveys were conducted according to the methods outlined in the wildlife survey manual. The surveys were conducted between July 25 and August 15, 2005. Brood size data indicates success of reproduction. This data is used to develop total state pheasant population. It is also used in developing harvest and management strategies.

Results and Analysis: On the 110 routes a total of 4,232 adult pheasants and 2,671 pheasant broods were observed (Table 1). The average brood size was determined to be 6.72 chicks per brood. A total of 22,181 pheasants were seen in 3,300 miles surveyed, resulting in 6.72 birds per mile surveyed.

Job leader: Will Morlock, Regional Wildlife Manager, Watertown, SD 605/882-5200.

JOB 9501-II PHEASANT WINTER SEX RATIO SURVEY

Objective: To determine winter sex ratios of pheasant populations throughout their range.

Narrative: The sex ratio survey will indicate the degree of harvest attained the previous hunting season and comparing this ratio with the ideal ratio of 15 males to 100 females. The data is collected throughout the range from the close of the pheasant season through March 31. The data is collected according to the methods outlined in the wildlife survey manual. Any males, in excess of the ideal ratio, indicate under utilization of surplus birds.

Results and analysis: A total of 3,474 rooster pheasants and 8,589 hen pheasants were counted. The total of 12,063 birds exceeds the number required in the study outline. A ratio of 40.4 males to 100 females was the result of this survey. This exceeds the ideal ratio of 15 males to 100 females, indicating an under-harvest of surplus male pheasants.

Job leader: Will Morlock, Regional Wildlife Manager, Watertown, SD 605/882-5200.

GROUSE MANAGEMENT SURVEYS

JOB 9502-I SHARP-TAILED GROUSE AND PRAIRIE CHICKEN SPRING SURVEY

Objective: To annually obtain an index of the abundance of breeding sharp-tailed grouse and prairie chickens throughout the main prairie grouse range.

Narrative: Between 15 March and 30 May, 2005, department personnel and cooperators conducted surveys of 47 sharp-tailed grouse leks covering approximately 616 square miles on 16 established survey areas throughout the main prairie grouse range in South Dakota. In addition, 33 prairie chicken leks were surveyed covering 416 square miles on 11 established routes.

Results and Analysis: Survey data of sharp-tailed grouse leks gathered in 2005 averaged 0.79 males per square mile, which is very similar (2% increase) to the 0.77 average in 2004 (Figure 2, Tables 2 and 3). Approximately 70% of the sharp-tailed grouse lek routes showed increases in male grouse per square mile when compared to 2004, whereas 30% showed decreases. Annual changes in male per square mile calculations were not possible for 5 routes (Table 2).

Greater prairie chicken lek surveys in 2005 averaged 0.53 males per square mile, demonstrating an overall 45% increase from 2004 (Figure 3, Tables 4 and 5). Approximately 57% of the prairie chicken lek routes showed increases, 14% showed no change, and 29% of the routes showed a decrease in males per square mile. Annual changes in male per square mile calculations were not possible for 4 routes.

Data and trends will continue to be collected and studied in following years to monitor and assess populations of prairie chickens and sharp-tailed grouse.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

JOB 9502-II SHARP-TAILED GROUSE AND PRAIRIE CHICKEN HARVEST FIELD SURVEY

Objective: To annually determine reproductive success, species composition of harvest, and distribution of harvest for sharp-tailed grouse and prairie chicken populations.

Narrative: The 2005 harvest field survey for sharp-tailed grouse and prairie chicken consisted of collecting grouse age data from hunter-harvested birds. Data collected by GFP personnel were obtained primarily from 11 wing box collection sites the first 2 weeks of the grouse season. Collection sites were distributed in various counties across the state, to include 3 sites in Perkins, 1 in Corson, 1 in Haakon, 2 in Stanley, 1 in Dewey, 1 in Sully, and 2 in Hand. Several wings were also collected from Conservation Officers and some voluntary hunter submissions. In addition, US Forest Service personnel collected wing data from 6 hunter wing boxes located throughout the Ft. Pierre National Grasslands.

Results and Analysis: Harvest data were collected statewide from 915 wings in 2005. Data were gathered and analyzed by GFP personnel from 271 grouse wings, of which 246 were sharp-tailed grouse and 25 prairie chicken. Ft. Pierre National Grassland personnel collected and analyzed data from 644 wings, of which 172 were sharp-tailed grouse and 472 prairie chicken (Table 6).

This year data were collected by both agencies using similar methods, therefore data were pooled for descriptive statistics. The young/adult ratio of all grouse collected in 2005 was 2.24. The age ratio for prairie chicken was 2.63 juveniles per adult, while the age ratio for sharp-tailed grouse was 1.88.

Data comparisons between years were made only for the Ft. Pierre Grasslands data set because GFP sample sizes were too small in 2004. From 2004 to 2005 sharp-tailed grouse age ratios decreased from a 14-year high experienced last year of 5.14 to 2.58, and prairie chicken age ratios decreased from 2.92 to 2.52.

Overall, based only on harvest data age ratios obtained from Ft. Pierre National Grasslands, grouse populations in the state appear to have experienced less reproductive success in 2005 than in 2004, but reproduction was still slightly above the last 14-year averages. Although drought conditions continued to exist in western and central South Dakota in 2005, habitat conditions were adequate for grouse reproduction because of timely rains in the spring and early summer months.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

Job 9502-III Sage Grouse Spring Survey and Lek Inventory

Objectives: To annually determine the status of sage grouse populations in South Dakota by obtaining an index of breeding sage grouse on known and historical leks and conducting periodic aerial observations to detect previously unidentified leks.

Narrative: Department cooperators conducted surveys of 35 sage grouse leks in Butte, Harding and Fall River Counties during the months of April and May. Surveys were conducted under favorable weather conditions and good data were received. Twenty-three of the 35 leks were found active in 2005 versus 15 active leks of 21 leks surveyed in 2004. The winter of 2004-2005 was mostly "open" with less snow coverage and milder temperatures than average. The region has experienced intense drought conditions since 2002 due, in part, to infrequent and inadequate snowfall and spring run off.

Results and Analysis: Survey data of sage grouse leks gathered in 2005 indicate that 35 leks were counted and 23 or 65.7% were found to be active with displaying males and females present on the majority of sites. The data indicates a mean of 12.77 males per lek with a range of 0 to 52. The mean number of males/active lek was 19.43, which represents an increase of 22.3% from 2002 in that category. 2004 lek surveys showed a mean of 10.81-males/lek and a mean number of 14.3 males/active lek within a range of 0 to 32. In 2005, 8 leks demonstrated increases in the number of attending males from 2004 and 6 showed decreases. Total males counted in 2005 was 447 versus 227 in 2004. No aerial surveys were conducted in 2005.

Job Leader: John Wrede, Regional Wildlife Manager, 605-394-2394.

Job 9502-IV Sage Grouse Hunter Harvest Survey

Objectives: To annually determine characteristics of fall sage grouse populations and hunter utilization.

Narrative: The 2005 Sage Grouse field harvest survey consisted of collecting Sage Grouse sex and age data from hunter-harvested birds and noting hunter biographical information. Conservation Officers, Management and Technical Services personnel collected data during the two-day hunting season in Butte and Harding Counties. Sage Grouse wings and tissue samples were collected from birds when allowed by the hunters.

Results and Analysis: Approximately 40 individual hunters participated in the season. Total recorded harvest was 26 grouse, of which 17 were taken in Harding County and 9 were taken in Butte County. Of the 26 birds checked by employees, 14 were males and 12 were females. Two of the 12 females and 8 of the 14 males were adults. In comparison to the 2004 season, there was a slight increase in the number of birds taken but the ratio of males to females taken remained consistent at 1.16:1. The ratio of juvenile to adult birds taken in 2005 as compared to 2004 declined from 2.12:1 to 1.6:1. All birds but 6 were harvested on opening day.

Job Leader: John Wrede, Regional Wildlife Manager, 605-394-2394.

Job 9502-V Ruffed Grouse Spring Survey

Objectives: To annually obtain an index to the abundance of drumming ruffed grouse in the Black Hills.

Narrative: Department cooperators conducted surveys on 7 of the 10 established linear and or stationary drumming count routes located primarily in the northern and central Black Hills in April and early May of 2004. Eleven surveys were conducted on 7 of the 10 routes. Counties involved in the survey included; Lawrence, Meade, and Pennington. Linear routes consisted of traveling a distance of approximately 10 miles along a pre-established route and performing 4 minute listening stops every one-half mile along the route. Stationary routes consisted of traveling approximately 10 miles along a pre-determined route and stopping at 10 pre-determined locations for 8 minutes to listen for drumming grouse. Three Stationary and 8 linear routes were run by Department personnel and biologists from the US Forest Service. Surveys were conducted under favorable weather conditions and base line data were collected. During some surveys, visual observations of grouse were made along the routes but were recorded in the remarks section of the survey rather than in the auditory data collected. Observers were asked to record the primary over-story cover types at each stop on the routes. Route adjustments were made in some cases to compensate for recent road closures and land use changes but all routes remained as close to the original route location as possible.

Results and Analysis: Ruffed Grouse were detected on five of the seven routes in 2005. Survey data of ruffed grouse drumming count routes gathered indicate a mean of .28 grouse per listening stop for all stops made on the routes and .31 grouse per listening stop on routes where grouse were detected. A total of 110 miles were traveled during the survey and a total of 51 male ruffed grouse were detected and recording during the survey yielding an index of .46 grouse per lineal mile for all routes and .56 grouse per lineal mile for routes where grouse were found to be present. No grouse were detected on one stationary route and one linear route. Results of the survey indicate a moderate change in the index of .16 grouse per lineal mile on all routes and .21 grouse per lineal mile on routes where grouse were present as found in the 2004 survey. Drumming grouse were detected in diverse canopy cover consisting primarily of pine/aspen, pine/spruce/birch, or spruce/pine/birch.

Job Leader: John Wrede, Regional Wildlife Manager, 605-394-2394.

PARTRIDGE MANAGEMENT SURVEYS

JOB 9503-I GRAY PARTRIDGE HARVEST SURVEY

Objective: To annually determine fall partridge age and sex ratios, and relative abundance.

Narrative: The 2005 harvest field survey for gray partridge consisted of collecting partridge sex and age data from hunter-harvested birds. Data were to be collected primarily from wing box collections sites across the state, Conservation Officer Bag checks, and other wings of harvested birds voluntarily submitted by hunters.

Results and Analysis: No partridge harvest data were analyzed in 2005. Adequate sample sizes have plagued this survey for many years, and the presumably low population levels of partridge present in the state currently exacerbate this problem. The department should continue to search for other effective and feasible means of gathering partridge population trend data.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

QUAIL MANAGEMENT SURVEYS

JOB 9504-I QUAIL WHISTLE COUNT SURVEY

Objective: To annually determine population status of whistling male bobwhite quail throughout the main quail range in South Dakota.

Narrative: The Whistle Count Survey was conducted in 8 counties in southeastern and south central South Dakota. A total of 13 established routes are surveyed by Conservation Officers between June 20 and July 15. This survey is the primary indicator for annual breeding populations of quail in the south-central and southeastern areas of the state.

Results and Analysis: The 2005 Whistle Count Survey showed a 61% increase in males from the 2004 survey (Table 7). A total of 29 quail were recorded in 2005, compared to 18 in 2004. This represents a significant increase over last year, but is still below the long-term average of 36 quail (Figure 4, Table 8). It should also be noted that four of the thirteen routes were not run because of personnel and time constraints. The mild winter and better habitat conditions were the primary reasons for the increase.

Job Leader: Ron Schauer, Regional Wildlife Manager, (605) 362-2700.

WATERFOWL MANAGEMENT SURVEYS

JOB 9506-I SURVEYS OF MIGRATING AND WINTERING WATERFOWL

Objective: To annually measure waterfowl use of the Missouri River and vicinity during the fall migration and to determine the temporal and geographic distribution of waterfowl on Missouri River impoundments.

Narrative: Five aerial surveys with varying coverage of the Missouri River from the ND-SD state line to Sioux City, Iowa, were accomplished from November 8 – December 21, 2005. In addition, the river

system from the ND-SD state line to Sioux City, Iowa, was surveyed the first week in January during the January winter waterfowl survey. No photographic flights were accomplished this year. These surveys are the most efficient way to determine waterfowl use of the Missouri River system during the fall and winter. The data is used to provide information to the public on concentrations of waterfowl and to develop harvest and management strategies.

Results and Analysis: The peak population for geese during the 5 aerial surveys was the flight of November 16 when 110,470 Canada geese and 18,800 light geese were counted. The peak population for ducks occurred on the same flight when 64,750 ducks, primarily mallards, were counted. The mid-December all-goose survey has been discontinued by the Central Flyway and is not conducted any more. The January 4, 2006 winter waterfowl survey along the Missouri River revealed 38,199 Canada geese and 30,639 ducks, primarily mallards. A major weather system at the end of November sent the majority of waterfowl out of South Dakota.

Job Leader: Spencer Vaa, Senior Wildlife Biologist, 605-688-4786

BANDING AND BAND RECOVERY ANALYSIS OF MIGRATORY BIRDS

JOB 9510-I BANDING PROGRAMS AND BAND RECOVERY ANALYSIS

Objective: To annually band migratory birds common to South Dakota and to determine migratory bird species movement, harvest patterns, mortality rates, and other pertinent information from band recoveries.

Narrative: Giant Canada geese, ducks, and mourning doves were banded at various locations in South Dakota.

Results and Analysis: One thousand two hundred forty-three (1,243) giant Canada geese were banded in South Dakota in 2005. These birds included 71 from zoos in Sioux Falls and Aberdeen.

SD GFP personnel took part in a pre-season duck banding project in McPherson County and the Watertown area of eastern South Dakota. The Department provided \$1,575 to the operational Central Flyway banding program plus hundreds of man-hours of assistance. Rocket nets and swim-in traps were used to band 4,494 ducks during August and September (Table 9). This total includes 833 wood ducks, 1,876 mallards, and 1,396 blue-winged teal.

Mourning doves were banded in 6 different degree blocks (Pierre, Huron, Aberdeen, Watertown, Brookings, and Sioux Falls) as part of a nation-wide banding project. A total of 850 doves were banded (Table 10).

Job Leader: Paul Mammenga, Assistant Waterfowl Biologist, 605-626-2391

GAME BIRD NESTING SUCCESS SURVEYS

JOB 9521-I UPLAND GAME BIRD AND WATERFOWL NESTING SURVEY

Objective: To annually determine nesting success for various upland game birds and waterfowl, and to evaluate effects of land-use, predators and weather conditions on nesting success.

Narrative: Various types of waterfowl nest structures were monitored in 8 counties in eastern South Dakota to determine occupancy rate and nest success. Waterfowl nest success was monitored on 3 areas where predators were removed by a trapper during the time period of April 1 – July 1. Due to extremely high water, the electric fences at Bitter Lake in Day County and Twin Lakes in Spink County have been destroyed and one no longer is operation. Also, the exclosure fence at Scatterwood Lake in Faulk County has been abandoned, as we were unable to keep predators, including raptors, from the enclosed area. Predator removal was discontinued at the Hogsback GPA in 2005 and the electric fence was abandoned.

Results and Analysis: Twenty-one (21) culverts with fiberglass partitions located in Brookings and Brown counties contained 11 mallard nests and 19 Canada goose nests (Table 11). Nest success on mallards was 73% and for Canada geese it was 89%. Most of the unsuccessful nests were due to abandonment from high water levels or human disturbance.

One hundred sixty (160) mallard baskets with fiberglass cover-tops located in Brookings, Brown, Kingsbury, Marshall, Hamlin, Codington, and McPherson counties had 62 mallard nests and success was 95% (Table 12). Dry conditions influenced nesting activity this year.

In addition, 162 mallard cylinders, commonly known as hen houses, were monitored in Hamlin, Brookings, Deuel, McPherson, and Codington County. These contained 75 mallard nests and 87% were successful (Table 13).. It appears that our nest structure program is working well in South Dakota and the effort to equip all open mallard baskets with cover-tops is complete. We are also consolidating structures on fewer areas to facilitate monitoring and maintenance efforts. In addition, owl guards on top of the structure and an inverted cone on the pole are being installed to divert predators.

The 3 GPA's where DU projects have been completed (peninsula cut-offs, islands, electric fences, etc.) along with predator control work at the Long Lake GPA complex in Codington County during the nesting season in 2005 had generally good results (Table 14). Predators were effectively kept from the nests on Johnson Slough in Hamlin County, Lake Albert Island in Kingsbury County, and Horseshoe Lake in Codington County. A total of 64 duck nests were monitored and 57 were successful on the 3 sites. The electric barrier fence was replaced in 2000 on Horseshoe Lake with a new one. The predator exclosure fence on Scatterwood was discontinued in 1999, the Thompson GPA electric fence was discontinued in 2000, and the Hogsback electric fence was discontinued in 2005.

On the Long Lake GPA complex, 152 skunks, raccoons, and feral cats were removed with live traps during the nesting season. Two hundred twenty acres (220) of grassland nesting cover split into 5 fields were nest searched twice in May and June with a chain drag between two pickup trucks. Forty- one useable nests were located and nest cards were sent to the Northern Prairie Research Center for analysis. Mayfield nest success was 34.1% and apparent nest success was 63.4%.

Job Leader: Spencer Vaa, Senior Wildlife Biologist, 605-688-4786

STUDY SUMMARIES

INTRODUCTION

Increasing recruitment rates of prairie nesting ducks is essential to the success of the North American Waterfowl Management Plan. The goal of the Plan is to attain a fall flight of 100 million ducks under average environmental conditions. The size of the 2005 mid-continent mallard breeding population, which is comprised of mallards from the traditional survey area and the states of Minnesota, Wisconsin, and Michigan decreased slightly from 2004 (8.3 million to 7.6 million). Breeding population estimates for green-winged teal, gadwall, and shoveler remained above their respective long-term averages (LTA) while scaup and pintail remained well below their LTA. In fact the estimate for scaup was a record low. Wigeon also were below their long-term average in 2005. Canvasback and redhead were similar to their LTA. Total May ponds (in the U.S. prairies and prairie and parkland Canada combined) at 5.4 million were 37% higher than last year and 12% above the LTA of 4.8 million ponds. The total duck fall-flight index is no longer computed by the FWS. This report deals with results of fieldwork conducted in eastern South Dakota during 2005. Studies centered on duck nest success on areas where predators were controlled and the use of various types of nest structures by ducks and Canada geese. In addition, a summary of the 2005 pre-season duck and mourning dove banding programs are included. Studies were funded by the Department of Game, Fish and Parks under federal code 9521 and 9510. Data were collected by Wildlife Division personnel from both Technical Services and Operations.

STUDY AREA

A sample of nests (generally a minimum of 10-20) were located at a number of sites where intensive management to increase duck production is carried out. On some of these sites a trapper attempted to keep the area predator free by conducting predator removal during April 1 to July 1. In 2005, sites worked included the following: peninsula cut-off at Johnson Slough in Hamlin County, Lake Albert island in Kingsbury County, and Horseshoe electric fence in Codington County. Predator removal efforts were discontinued at the Hogsback GPA this year.

In addition, predators were removed on the Long Lake GPA Complex (4,714 acres) in Codington County. On this area, approximately 220 acres of grassland habitat in 5 fields were chain dragged in May and June.

Useable culverts, cylinders, and mallard nest baskets with overhead cover were located in the following counties for 2005: Brookings, Brown, Codington, Deuel, Edmunds, Hamlin, Kingsbury, Marshall, and McPherson. These were monitored for occupancy and nest success.

The pre-season duck-banding program, in cooperation with the FWS and Central Flyway, took place on various sites in McPherson, Hamlin, Clark and Codington County during August and September, although baiting and site preparation started in July. In addition, results from 6 mourning dove banding degree blocks in central and eastern South Dakota are included. This is a cooperative banding effort with the Central Management Unit (CMU).

METHODS

Areas where a sample of nests were located to assess management efforts/predator control work were searched on foot by 1-2 people using willow sticks. Initial searches took place in May and were subsequently rechecked for nest success in June and July.

Approximately 220 acres of grassland habitat were nest searched with a log chain between 2 pickup trucks on the Long Lake GPA Complex (LLC) in Codington County. Two drags, per field, took place in May and June and nests were checked for success in June and July.

All nests were revisited at least once to determine fate. A nest was considered successful if at least one egg hatched. Nests with no sign of eggs, shells or membranes or with scattered or eaten shells were classified as destroyed. Nests containing whole eggs that had ceased development were recorded as abandoned.

Apparent nest success was calculated by dividing the number of successful nests by the number of nests for which a fate was determined. The nests from the LLC were sent to Northern Prairie for Mayfield analysis.

Predator control during April 1 to July 1 was accomplished by a trapper using box traps, leg hold traps, snares, and firearms. Areas trapped in 2005 included Johnson Slough, Lake Albert island, and Horseshoe Lake. Live traps were used on the Long Lake Complex.

Culverts and mallard baskets containing overhead cover were checked by Paul Mammenga, Mark Grovijahn and Spencer Vaa with the use of an Argo machine, by boat and chest waders.

RESULTS

DU Projects With Predator Control

A sample of nests (minimum of 10-20 if possible) were located on 3 areas to assess waterfowl production. These areas included Johnson Slough, Lake Albert Island, and Horseshoe Lake. Nest samples were obtained during early to late May and were rechecked in June and July. It should be noted that a systematic search to find all nests on Johnson Slough, Horseshoe, and the Lake Albert island was not the goal; rather, a sample of nests were located to assess waterfowl production on sites where a trapper attempted to remove all predators from the site.

The Johnson Slough peninsula cutoff in Hamlin County had fair production in 2005. A sample of 18 nests, including 16 mallard, 1 gadwall, and 1 redhead were located in May and June. Sixteen of the nests were successful and 2 abandoned. High water in recent years has reduced the area available to nesting hens and fewer hens nested this year. This site is important to nesting giant Canada geese as evidenced by the large number of goose nests (about 40) present this year. Two raccoon, 1 feral cat, 2 skunk, 1 mink, and 4 13-liners were removed from the area.

On the Lake Albert Island in Kingsbury County (20 acres), nineteen mallard nests were located in mid-May. Sixteen were successful, 2 abandoned, and 1 not relocated. No predators were removed but it appeared there were none on the island this year. A large number of ducks nested on this island in 2005 and there were many (over 50) successful Canada goose nests.

On Horseshoe Lake in Codington County, twenty-seven duck nests were located of which 4 were scaup, 4 redhead, 1 canvasback, and 17 mallards. Twenty-five were successful and 2 abandoned. Parts of this area are inundated by high water. Three raccoon, 3 13-line ground squirrels, and 5 skunks were removed. There were over 50 Canada goose nests on Horseshoe Lake and most were successful.

Long Lake Complex

Two hundred twenty (220) acres of grassland (5 fields) were nest searched at the LLC and 43 duck nests were located. Forty-one (41) were useable as a farmer baled up 2 nests. Nest cards were sent to Northern Prairie for analysis. Twenty-six of the 41 useable nests were successful for a Mayfield rate of 34.1% and an apparent rate of 63.4%. Sixty-seven skunks, 62 raccoons, 13 woodchucks, 1 opossum, 6 ground squirrels, and 23 feral cats were live-trapped and removed from this complex prior to and during the nesting season.

Use of Culverts by Ducks and Canada Geese

A fair year for duck/Canada goose production occurred on culverts in 2005. Twenty-one culverts with fiberglass partitions in Brown and Brookings counties resulted in 11 mallard and 19 Canada goose nests. Apparent nest success was 73% for ducks and 89% for Canada geese. High water levels/ice damage has caused problems to many nest structures, especially in the Bitter Lake and Redetzke GPA area in Day County. We are also having some problems with horned owls and have installed many owl guards.

Use of Baskets with Cover Tops by Ducks

One hundred sixty (160) mallard baskets with fiberglass cover-tops in 7 counties resulted in 62 nests and 95% success. Putting a cover-top on a regular mallard basket is a great way to increase the occupancy rate and all of our mallard baskets now have fiberglass cover tops installed. We are consolidating our nest structures on fewer wetlands to facilitate monitoring and maintenance. Dry conditions in 2005 influenced nesting activity on some structures. Also, fewer hens returned to the baskets this year as the occupancy rate was 38%.

Mallard Cylinders

One hundred sixty-two (162) cylinders in 5 counties resulted in 75 nests with 87% success. All were mallard nests. Mallards seek the overhead cover provided by the cylinders and they are among the best type of structures available. Dry conditions influenced nesting activity on some structures this season. Occupancy rate was lower this year at 46%.

CONCLUSIONS

The predator control work carried out at the DU project sites on Horseshoe Lake, Johnson Slough and Lake Albert island resulted in good duck and Canada goose production in 2005. It has proven to be very difficult to control predators on the Hogsback area in Kingsbury County so in 2005 we did not attempt to remove predators. On the Lake Albert Island, if predators are present early in the nesting season, they are tough to control, but in 2005 they were absent. Mallard cylinders and baskets with cover tops were productive nest structures again this year, but occupancy rates declined. Horned owls are becoming a problem, especially at Oakwood Lakes. Owl guards have been installed.

The predator removal at the Long Lake Complex was very successful as density of duck nests 43 nests/220 acres of grassland was good and success rates were above maintenance level (34.1% Mayfield, 63.4% apparent). We will continue these efforts at the LLC.

The bottom line is we can make a difference in the population of local mallards by using various types of structures. We have learned that the predator population is very resourceful and we need to adapt (owl guards, cover-tops barriers, etc.). Annual maintenance is critical. The emphasis will continue to focus on mallards.

The best uses of this data are:

- 1) To provide information about waterfowl production on Department lands to GF&P personnel.
- 2) Encourage WCO's and others to submit proposals for waterfowl habitat projects.
- 3) Evaluate effectiveness of DU projects.
- 4) Evaluate effectiveness of trapping on specific sites.
- 5) Evaluate effectiveness of nest structures.

APPENDIX

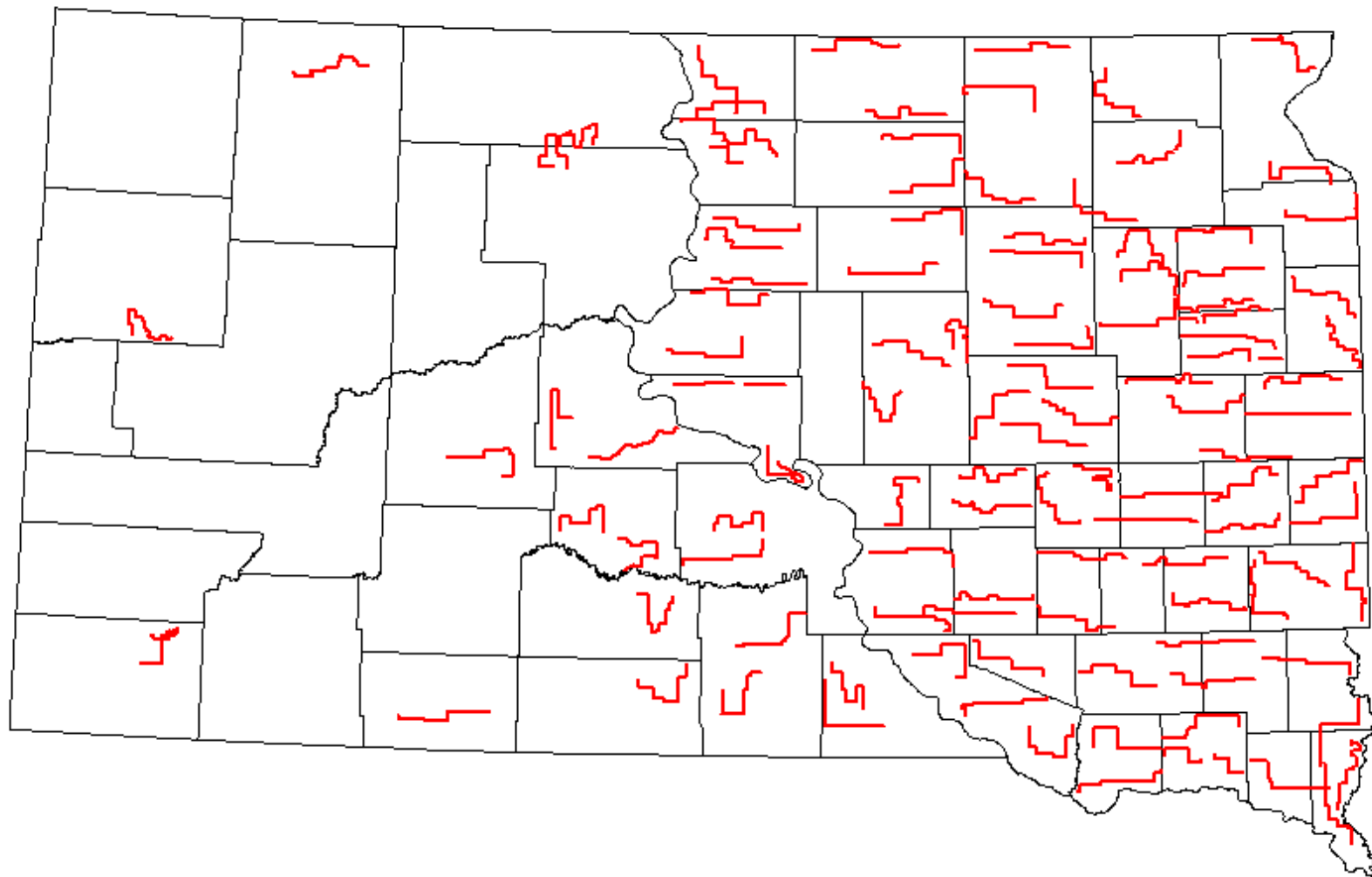


Figure 1. 2005 pheasant brood survey routes.

SHARP-TAILED GROUSE SPRING MALE DENSITIES, 1994-present

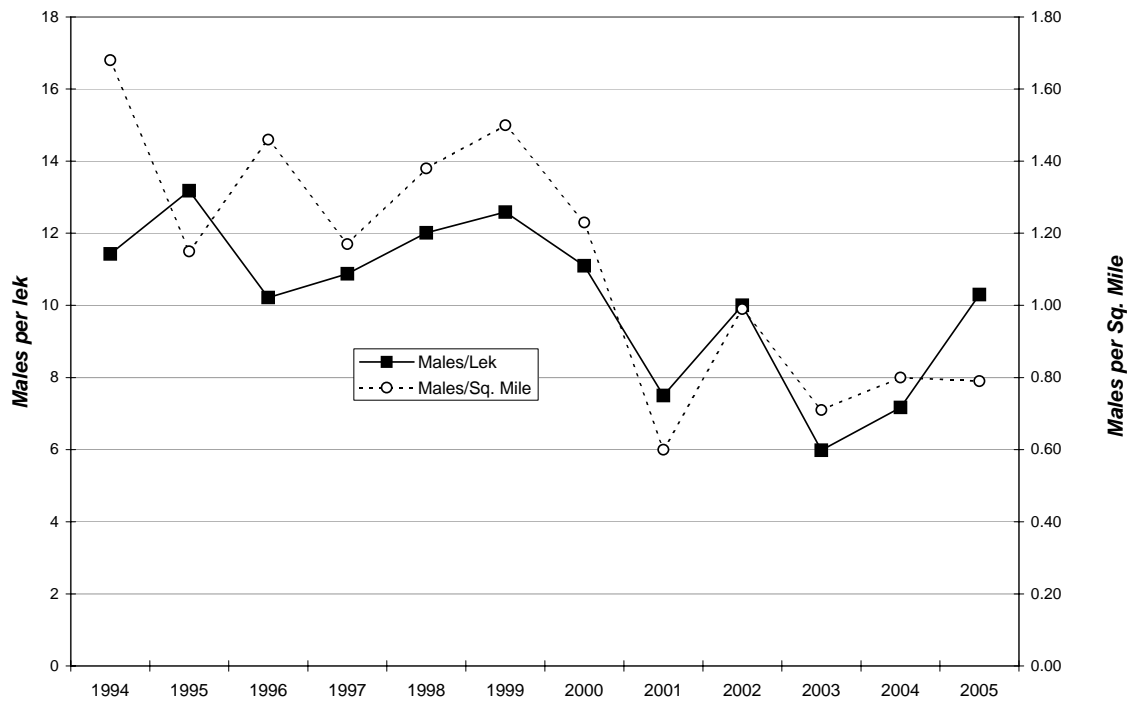


Figure 2. Sharp-tailed grouse spring male density summaries, 1994-present.

GREATER PRAIRIE CHICKEN SPRING MALE DENSITIES, 1994-present

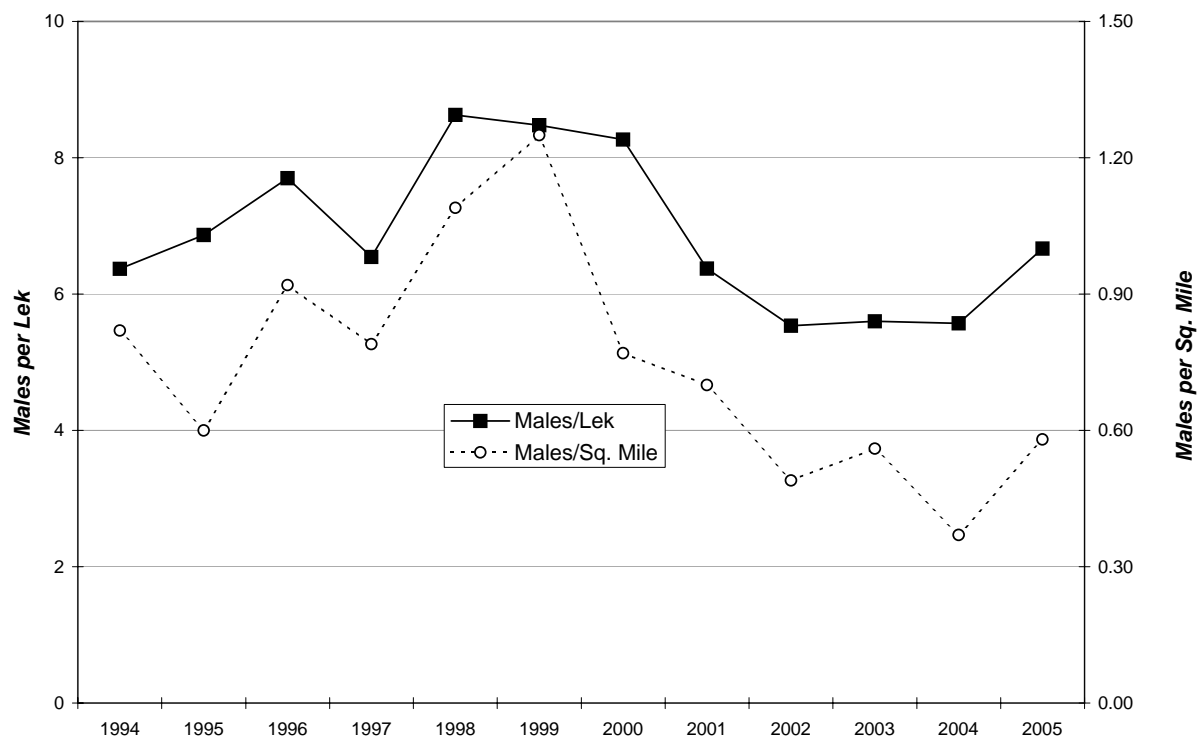


Figure 3. Greater prairie chicken spring male density summaries, 1994-present.

BOBWHITE QUAIL WHISTLE COUNT SURVEY, 1963-2005

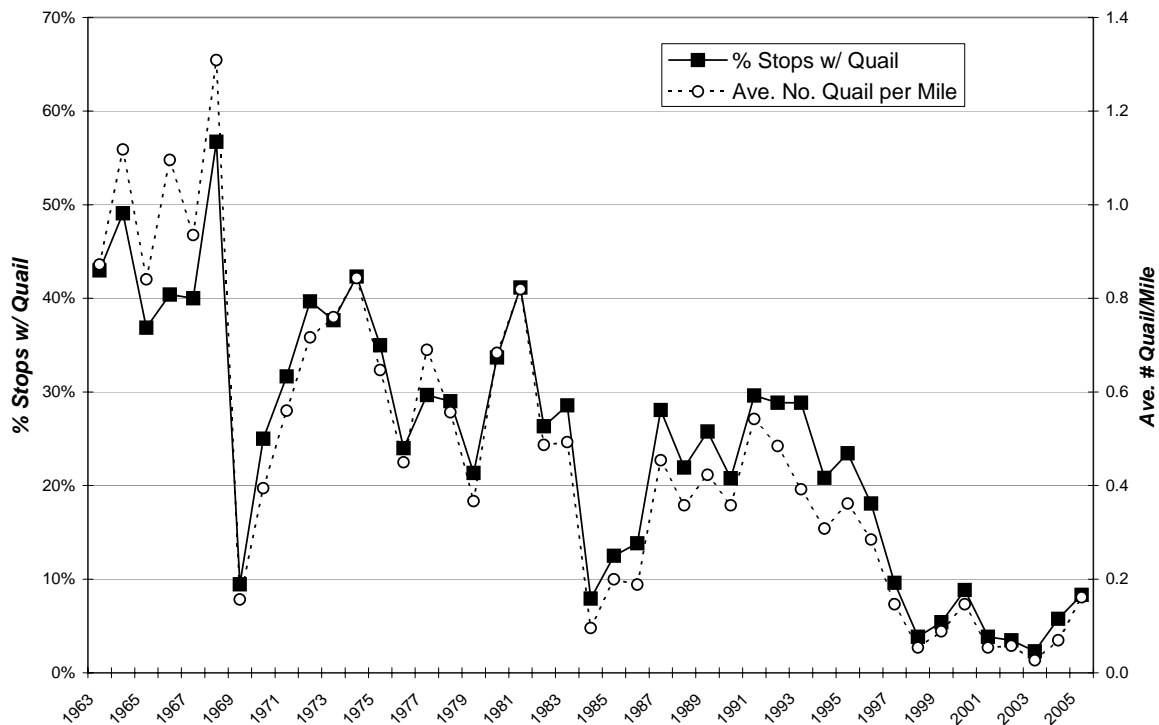


Figure 4. Northern bobwhite whistle count survey, 1963-present.

Table 1. 2005 pheasant brood survey route results.

2005 Pheasant Brood Survey Summary Sheet

COUNTY	ROUTE	REGION	COCKS	HENS	BROODS	AVG BRD SIZE	PHEAS PER MILE	2004 PHEAS PER MILE	% CHANGE
Bennett N	11N	1	15	23	22	6.23	5.84	4.59	27%
Butte	15M	1	6	5	5	6.23	1.41	0.89	59%
Fall River	27M	1	1	9	9	6.23	2.20	3.80	-42%
Haakon	31M	1	2	4	3	6.23	0.82	0.30	179%
Perkins	53N	1	7	16	13	6.23	3.47	2.29	51%
Brule N	13N	2	26	131	130	6.49	33.36	35.92	-7%
Brule S	13S	2	20	82	76	6.49	19.84	37.44	-47%
Buffalo	14S	2	10	37	27	6.49	7.41	3.44	115%
Campbell N	16N	2	5	13	9	6.49	2.55	2.34	9%
Campbell S	16S	2	12	8	7	6.49	2.18	2.52	-13%
Charles Mix M	17M	2	13	29	29	6.49	7.67	9.58	-20%
Charles Mix N	17N	2	8	27	24	6.49	6.36	7.12	-11%
Charles Mix S	17S	2	8	12	8	6.49	2.40	0.95	152%
Corson	20S	2	3	12	12	6.49	3.10	3.92	-21%
Dewey-Corson	24N	2	14	29	23	6.49	6.41	4.30	49%
Douglas	25S	2	10	48	44	6.49	11.45	7.49	53%
Gregory N	30N	2	8	28	21	6.49	5.74	14.70	-61%
Gregory S	30S	2	14	40	29	6.49	8.07	8.63	-6%
Hand M	33M	2	47	81	68	6.49	18.98	8.38	127%
Hand N	33N	2	24	24	20	6.49	5.93	9.38	-37%
Hand S	33S	2	24	25	18	6.49	5.53	3.75	48%
Hughes N	36N	2	5	13	13	6.49	3.41	3.30	3%
Hughes S	36S	2	3	10	8	6.49	2.16	0.99	119%
Jones N	41N	2	4	13	11	6.49	2.95	3.03	-3%
Jones S	41S	2	0	7	7	6.49	1.75	3.00	-42%
Lyman N	45N	2	3	35	34	6.49	8.62	23.55	-63%
Lyman S	45S	2	14	85	73	6.49	19.09	15.92	20%
Mellette	50E	2	5	5	5	6.49	1.42	0.24	492%
Potter M	54M	2	23	34	31	6.49	8.61	11.67	-26%
Potter N	54N	2	10	34	30	6.49	7.96	8.93	-11%
Potter S	54S	2	49	48	43	6.49	12.54	7.63	64%
Stanley S	58S	2	0	3	3	6.49	0.75	0.24	213%
Stanley W	58W	2	6	10	10	6.49	2.70	1.81	49%
Sully N	59N	2	20	47	39	6.49	10.67	9.13	17%
Sully S	59S	2	7	28	24	6.49	6.36	5.76	10%
Tripp N	60N	2	16	29	28	6.49	7.56	11.68	-35%
Tripp S	60S	2	3	6	4	6.49	1.17	1.60	-27%
Walworth E	63E	2	10	22	17	6.49	4.74	3.31	43%
Walworth W	63W	2	11	35	34	6.49	8.89	7.16	24%
Todd	67N	2	1	1	1	6.49	0.28	0.27	3%
Minnehaha E	01E	3	4	9	8	6.08	2.05	1.09	88%
Minnehaha N	01N	3	4	9	8	6.08	2.05	2.68	-23%
Minnehaha W	01W	3	7	16	16	6.08	4.01	4.69	-14%
Beadle E	04E	3	19	39	38	6.08	9.63	7.35	31%
Beadle N	04N	3	5	22	21	6.08	5.16	6.03	-14%
Beadle S	04S	3	13	43	41	6.08	10.18	8.57	19%
Beadle W	04W	3	24	45	44	6.08	11.22	11.30	-1%
Brookings M	06M	3	18	37	28	6.08	7.51	3.73	101%
Brookings N	06N	3	12	59	53	6.08	13.11	8.00	64%
Brookings S	06S	3	14	32	26	6.08	6.80	3.76	81%
Yankton N	07N	3	7	10	8	6.08	2.19	1.06	106%
Yankton S	07S	3	2	4	4	6.08	1.01	0.99	2%
Davison-Hanson N	08N	3	3	7	7	6.08	1.75	3.55	-51%
Davison-Hanson S	08S	3	6	8	8	6.08	2.09	1.34	56%
Aurora M	10M	3	14	54	51	6.08	12.60	14.03	-10%

(Continued next page)

Table 1. 2005 pheasant brood survey route results (cont'd).

COUNTY	ROUTE	REGION	COCKS	HENS	BROODS	AVG BRD SIZE	PHEAS PER MILE	2004 PHEAS PER MILE	% CHANGE
Aurora-Brule	10S	3	7	43	41	6.08	9.98	7.58	32%
Bon Homme N	12N	3	5	4	3	6.08	0.91	0.88	3%
Bon Homme S	12S	3	11	1	1	6.08	0.60	0.70	-13%
Clay-Union	19M	3	4	6	4	6.08	1.14	1.34	-15%
Hutchinson W	37W	3	6	6	6	6.08	1.62	2.93	-45%
Jerauld N	40N	3	12	48	43	6.08	10.71	8.99	19%
Jerauld S	40S	3	26	34	30	6.08	8.08	7.15	13%
Kingsbury N	42N	3	12	23	20	6.08	5.22	3.41	53%
Kingsbury S	42S	3	12	43	36	6.08	9.13	2.79	228%
Lake N	43N	3	7	13	11	6.08	2.90	3.13	-8%
Lake S	43S	3	3	16	15	6.08	3.67	3.07	20%
Lincoln M	44M	3	1	6	6	6.08	1.45	1.34	8%
Lincoln S	44S	3	0	5	4	6.08	0.98	2.24	-56%
McCook-Hanson	46N	3	1	15	15	6.08	3.57	2.12	69%
McCook S	46S	3	3	16	15	6.08	3.67	2.24	64%
Miner N	51N	3	11	29	29	6.08	7.21	11.68	-38%
Miner S	51S	3	16	40	31	6.08	8.15	13.27	-39%
Moody N	52N	3	11	25	24	6.08	6.06	5.67	7%
Moody S	52S	3	8	19	18	6.08	4.55	3.02	51%
Sanborn M	56M	3	27	69	55	6.08	14.35	10.01	43%
Sanborn N	56N	3	35	58	36	6.08	10.40	6.12	70%
Turner-Hutchinson N	61N	3	2	8	7	6.08	1.75	2.54	-31%
Turner-Hutchinson S	61S	3	2	8	6	6.08	1.55	1.41	10%
Union N	62N	3	4	9	7	6.08	1.85	1.52	22%
Union S	62S	3	1	6	5	6.08	1.25	1.06	18%
Brown M	03M	4	28	47	41	7.30	12.48	6.96	79%
Brown N	03N	4	11	26	26	7.30	7.56	4.95	53%
Brown S	03S	4	15	33	28	7.30	8.41	5.60	50%
Codington M	05M	4	4	21	19	7.30	5.46	2.13	156%
Codington N	05N	4	8	19	19	7.30	5.52	7.33	-25%
Codington S	05S	4	11	50	44	7.30	12.74	5.96	114%
Clark M	18M	4	8	32	31	7.30	8.88	3.26	172%
Clark N	18N	4	13	45	43	7.30	12.40	4.46	178%
Clark S	18S	4	15	50	48	7.30	13.85	4.66	197%
Day N	22N	4	6	14	14	7.30	4.07	1.18	244%
Day S	22S	4	3	31	28	7.30	7.95	10.73	-26%
Deuel N	23N	4	7	9	9	7.30	2.72	0.93	193%
Deuel S	23S	4	9	40	39	7.30	11.12	3.54	214%
Edmunds N	26N	4	28	57	51	7.30	15.24	8.96	70%
Edmunds S	26S	4	15	59	46	7.30	13.66	7.37	85%
Faulk N	28N	4	28	38	34	7.30	10.47	4.35	141%
Faulk S	28S	4	4	22	22	7.30	6.22	1.44	332%
Grant	29M	4	3	4	3	7.30	0.96	1.15	-16%
Hamlin M	32M	4	13	33	30	7.30	8.83	4.50	96%
Hamlin-Codington	32N	4	7	35	31	7.30	8.94	5.10	75%
Hamlin S	32S	4	14	26	21	7.30	6.44	3.59	80%
McPherson N	47N	4	11	13	10	7.30	3.23	4.85	-33%
McPherson S	47S	4	9	19	14	7.30	4.34	1.74	150%
Marshall	48S	4	12	13	13	7.30	4.00	2.11	89%
Roberts N	55N	4	4	6	6	7.30	1.79	1.76	2%
Roberts S	55S	4	10	14	14	7.30	4.21	0.71	494%
Spink M	57M	4	17	44	44	7.30	12.74	8.28	54%
Spink N	57N	4	27	45	39	7.30	11.89	14.65	-19%
Spink S	57S	4	23	39	38	7.30	11.31	10.36	9%
Spink X	57X	4	19	30	25	7.30	7.72	5.17	49%
STATEWIDE TOTAL			1,228	3,006	2,671		6.63	5.66	17%

prepared by: Will Morlock

Table 2. Sharp-tailed grouse spring breeding population density, 2005.

County/Route	Area surveyed Sq.Miles	#Leks Surveyed	#males	Number Males/Lek	Number Leks/Sq.Mile	Number Males/Sq.Mile	% change prev year
Buffalo	40	0	0	0.0	0.00	0.00	-
Beadle	40	2	12	6.0	0.05	0.30	up
Bennett	40	5	59	11.8	0.13	1.48	up
Butte (county-wide)				-	-	-	-
Campbell				-	-	-	-
Charles Mix (sections)	36	3	26	8.7	0.08	0.72	-
Corson				-	-	-	-
Corson-Dewey	40	3	34	11.3	0.08	0.85	-
Dewey				-	-	-	-
Fall River (county-wide)				-	-	-	-
Ft.Pierre GrsInd	40	2	23	11.5	0.05	0.58	up
Gregory (sections)	24	10	146	14.6	0.42	6.08	-
Haakon	40	2	8	4.0	0.05	0.20	up
Hand county (new)	40	1	7	7.0	0.03	0.18	
Harding (county-wide)				-	n/a	n/a	n/a
Hughes-Hyde	40	3	27	9.0	0.08	0.68	up
Jackson	40	8	59	7.4	0.20	1.48	up
Jerauld-Aurora	40	2	36	18.0	0.05	0.90	up
Jones (incomplete)	40	1	20	20.0	0.03	0.50	4%
Jones-Stanley	40	2	3	1.5	0.05	0.08	up
Lyman				-	-	-	-
Meade				-	-	-	-
Mellette				-	-	-	-
Pennington				-	-	-	-
Perkins				-	-	-	-
Stanley				-	-	-	-
Todd (changed to route)	40	1	16	16.0	0.03	0.40	up
Tripp (sections)	36	2	9	4.5	0.06	0.25	-
Ziebach				-	-	-	-
STATEWIDE	616	47	485	10.3	0.08	0.79	0%
2004 males/square mile =		0.80					

Table 3. Sharp-tailed grouse males per lek, 1994-present.

SHARP-TAILED GROUSE MALES PER LEK, 1994-present				
Year	Leks	Males	Males/Lek	Males/Sq. Mile
1994	94	1,074	11.43	1.68
1995	39	514	13.18	1.15
1996	98	1,001	10.21	1.46
1997	58	631	10.88	1.17
1998	87	1,045	12.01	1.38
1999	87	1,095	12.59	1.50
2000	91	1,010	11.10	1.23
2001	68	510	7.50	0.60
2002	82	820	10.00	0.99
2003	92	550	5.98	0.71
2004	71	509	7.17	0.80
2005	47	485	10.30	0.79

Table 4. Greater prairie chicken spring breeding population density, 2005.

2005 GREATER PRAIRIE CHICKEN SPRING BREEDING POPULATION DENSITY							
County/Route	Square Miles	Grounds Counted	Males Counted	Ave. # Males per Ground	Grounds per Sq. Mile	Males per Sq. Mile	% Change from 2004
Beadle	40	3	39	13.0	0.08	0.98	
Buffalo	40	2	18	9.0	0.05	0.45	
Charles Mix (sections)	36	4	21	5.3	0.11	0.58	
Dewey				-	-	-	
Ft. Pierre Grslnd	40	4	39	9.8	0.10	0.98	
Gregory (sections)	24	2	7	3.5	0.08	0.29	
Hughes-Hyde	40	4	18	4.5	0.10	0.45	
Jerauld-Aurora	40	2	13	6.5	0.05	0.33	
Jones (incomplete)	40	4	19	4.8	0.10	0.48	
Jones-Stanley	40	2	9	4.5	0.05	0.23	
Lyman				-	-	-	
Stanley				-	-	-	
Todd	40	5	33	6.6	0.13	0.83	
Tripp (sections)	36	1	4	4.0	0.03	0.11	
STATEWIDE	416	33	220	6.7	0.08	0.53	45%

Table 5. Greater prairie chicken males per lek, 1994-present.

GREATER PRAIRIE CHICKEN MALES PER LEK, 1994-present				
Year	Leks	Males	Males/Lek	Males/Sq. Mile
1994	46	293	6.37	0.82
1995	30	206	6.87	0.60
1996	50	385	7.70	0.92
1997	33	216	6.55	0.79
1998	54	466	8.63	1.09
1999	67	568	8.48	1.25
2000	41	339	8.27	0.77
2001	48	306	6.38	0.70
2002	43	238	5.53	0.49
2003	45	252	5.60	0.56
2004	21	117	5.57	0.37
2005	33	220	6.67	0.58

Table 6. Prairie grouse wing data from Ft. Pierre National Grassland, 1992-present.

PRAIRIE GROUSE WING DATA - FT PIERRE NATIONAL GRASSLAND								
Year	Total # Wings	Prairie Chickens			Sharptails			Both J:A Ratio
		# Wings	% Wings	J:A Ratio	# Wings	% Wings	J:A Ratio	
1992	259	141	54%	2.44	118	46%	2.47	2.46
1993	445	271	61%	2.76	174	39%	3.05	2.90
1994	770	390	51%	2.61	380	49%	2.52	2.56
1995	980	681	69%	2.57	299	31%	2.69	2.63
1996	637	389	61%	2.54	248	39%	2.44	2.50
1997	622	374	60%	2.43	248	40%	2.02	2.26
1998	881	549	62%	2.31	332	38%	2.35	2.32
1999	1,045	610	58%	2.23	435	42%	2.48	2.33
2000	859	524	61%	1.76	335	39%	2.28	1.94
2001	565	371	66%	1.90	194	34%	2.46	2.07
2002	169	103	61%	0.49	66	39%	0.83	0.61
2003	331	214	65%	2.01	117	35%	2.44	2.15
2004	386	251	65%	2.92	135	35%	5.14	3.49
2005	644	472	73%	2.52	172	27%	2.58	2.54

Table 7. 2005 northern bobwhite whistle count survey.

2005 BOBWHITE WHISTLE COUNT SUMMARY

Last Revised: 07/26/2006

County	Route	# Stops	# Stops w/ Quail	% Stops w/ Quail	Total Quail Whistling	# Quail / Stop	Type Data	% Change from Last Year	Personnel
Gregory	1	20	3	15	3	0.15	P	50%	Lindbloom
Gregory	2	20	7	35	18	0.90	P	100%	Lindbloom
Charles Mix	1	20	1	5	1	0.05	P	100%	Bisbee
Clay	1	20	1	5	1	0.05	P	100%	Morrow
Clay	3				NOT RUN			N/A	
Union	2	20	0	0	0	0.00	S	0%	Petry
Union	3				NOT RUN			N/A	
Lincoln	1	20	0	0	0	0.00	P	0%	Schauer
Bon Homme	1	20	0	0	0	0.00	P	0%	Crownover
Bon Homme	2				NOT RUN			N/A	
Yankton	1				NOT RUN			N/A	
Yankton	2	20	3	15	6	0.30	S	50%	Alban
Tripp	1	20	0	0	0	0.00	P	-100%	Withers
TOTALS		180	15	8.3	29	0.16	P=7 S=2	61%	

Table 8. Northern bobwhite whistle count survey summary, 1963-present.

<i>BOBWHITE QUAIL WHISTLE COUNT SURVEY</i>						
Year	# Stops	# Stops w/ Quail	% Stops w/ Quail	Total # Birds Heard	Ave. No. Quail per Mile	% Primary Data
1963	235	101	43.0%	205	0.9	74
1964	220	108	49.1%	246	1.1	73
1965	320	118	36.9%	269	0.8	50
1966	240	97	40.4%	263	1.1	83
1967	200	80	40.0%	187	0.9	80
1968	275	156	56.7%	360	1.3	93
1969	370	35	9.5%	58	0.2	56
1970	312	78	25.0%	123	0.4	100
1971	300	95	31.7%	168	0.6	100
1972	300	119	39.7%	215	0.7	100
1973	300	113	37.7%	228	0.8	100
1974	300	127	42.3%	253	0.8	100
1975	300	105	35.0%	194	0.6	67
1976	300	72	24.0%	135	0.5	67
1977	300	89	29.7%	207	0.7	80
1978	300	87	29.0%	167	0.6	100
1979	300	64	21.3%	110	0.4	100
1980	300	101	33.7%	205	0.7	100
1981	260	107	41.2%	213	0.8	92
1982	300	79	26.3%	146	0.5	60
1983	280	80	28.6%	138	0.5	57
1984	240	19	7.9%	23	0.1	100
1985	280	35	12.5%	56	0.2	86
1986	260	36	13.8%	49	0.2	76
1987	260	73	28.1%	118	0.5	100
1988	260	57	21.9%	93	0.4	77
1989	260	67	25.8%	110	0.4	77
1990	260	54	20.8%	93	0.4	85
1991	260	77	29.6%	141	0.5	77
1992	260	75	28.8%	126	0.5	77
1993	260	75	28.8%	102	0.4	69
1994	240	50	20.8%	74	0.3	50
1995	260	61	23.5%	94	0.4	69
1996	260	47	18.1%	74	0.3	69
1997	260	25	9.6%	38	0.1	69
1998	260	10	3.8%	14	0.1	77
1999	260	14	5.4%	23	0.1	77
2000	260	23	8.8%	38	0.1	77
2001	260	10	3.8%	14	0.1	61
2002	260	9	3.5%	15	0.1	61
2003	260	6	2.3%	7	0.0	46
2004	260	15	5.8%	18	0.1	54
2005	180	15	8.3%	29	0.2	78

Table 9. Pre-season (August – September 2005) duck banding summary^a. Banding performed under permit 06897 in McPherson County and Watertown area.

Species	Male			Female			Total
	AHY	HY	LOCAL	AHY	HY	LOCAL	
Mallard	37	803	16	76	927	17	1,876
Gadwall	0	25	62	24	29	78	218
Green-winged teal	2	7	0	2	3	0	14
Blue-winged teal	42	678	16	50	583	27	1,396 ^c
Northern shoveler	0	1	2	0	2	1	6
Northern pintail	3	32	9	3	73	7	127 ^b
Wood duck	696	42	0	69	26	0	833 ^d
Redhead	0	0	0	2	0	0	2
Lesser Scaup	0	1	5	1	6	4	17
Ruddy Duck	0	0	1	0	0	0	1
Total	780	1,589	111	227	1,652	134	4,494

^a Included ducks banded by personnel from the Department of Game, Fish & Parks and Ducks Unlimited, Inc., banding on Goebel Ranch.

^b Most pintails banded by personnel from Ducks Unlimited, Inc. on the Goebel Ranch.

^c Most blue-winged teal banded by personnel from Ducks Unlimited, Inc. on the Goebel Ranch.

^d Most wood ducks banded by personnel from the Department of Game, Fish & Parks on Mickelson Marsh in Hamlin County.

Table 10. South Dakota mourning dove banding, 2005.

	MALE	FEMALE	UNKNOWN	TOTAL
AHY	231	162	48	441
HY	0	0	409	409
UNKNOWN	0	0	0	0
TOTAL	231	162	457	850

Table 11. South Dakota culvert nesting structures with fiberglass cover partitions, 2005.

COUNTY	# CULVERTS	# USED	MALLARDS		CANADA GEESE	
			# NESTS	# SUCCESSFUL	# NESTS	# SUCCESSFUL
Brown	11	3/27%	3	2/67%	11	11/100%
Brookings	10	5/50%	8	6/75%	8	6/75%
TOTALS	21	8/38%	11	8/73%	19	17/89%

Table 12. South Dakota mallard baskets with fiberglass cover-tops, 2005.

REGION 3	# BASKETS	# USED/%	# NESTS	# SUCCESSFUL/%
Brookings	25	10/40%	10	9/90%
Kingsbury	5	4/80%	4	4/100%
TOTALS	30	14/47%	14	13/93%
REGION 4	# BASKETS	# USED/%	# NESTS	# SUCCESSFUL/%
Brown	67	19/28%	20	20/100%
Codington	9	3/33%	3	3/100%
Hamlin	34	13/38%	13	13/100%
Marshall	15	9/60%	10	8/80%
McPherson	5	2/40%	2	2/100%
TOTALS	130	46/35%	48	46/96%
GRAND TOTAL	160	60/38%	75	59/93%

Dry conditions influenced nesting activity on some structures this season.

Table 13. South Dakota mallard cylinders, 2005.

COUNTY	# CYLINDERS	# USED/%	# NESTS	# SUCCESSFUL/%
McPherson	12	8/67%	8	8/100%
Brookings	6	2/33%	2	1/50%
Hamlin	87	49/56%	49	45/92%
Codington	46	15/33%	15	10/67%
Deuel	11	1/9%	1	1/100%
TOTALS	162	75/46%	75	65/87%

Dry conditions influenced nesting activity on some structures this season.

Table 14. Predators removed from waterfowl nest success study areas, 1 April - 1 July 2005.

Area	Raccoon	Skunk	Fox	Beaver	Coyote	Mink	Ground Squirrel	Opossum	Wood chuck	Feral cat	Total
Long Lake Complex	62	67	0	0	0	0	6	1	13	23	172
Johnson Slough	2	2	0	0	0	1	4	0	0	1	10
Horseshoe	3	5	0	0	0	0	3	0	0	0	11
Lake Albert Island	0	0	0	0	0	0	0	0	0	0	0
Totals	67	74	0	0	0	1	13	1	13	24	193